UNCLASSIFIED

Information Science and Technology Seminar Speaker Series and Data Science at Scale Summer School Speaker Series

Hank Childs
University of Oregon

Exascale Computing, Flow Visualization, and Data Exploration: A Strategy for Achieving All Three

Wednesday, September 10, 2014

3:00 - 4:00 PM

TA-3, Bldg. 1690, Room 102 (CNLS Conference Room)

Abstract: Simulations on exascale computers will likely require new approaches for visualization and analysis. One significant predicted change for this environment is an increased reliance on in situ processing, as disks on exascale machines may not be able to keep pace with the simulation's ability to create data. While in situ processing create new opportunities, specifically in terms of being able to access more data than ever possible before, one concern with the approach is the reduced ability to explore data. With this talk, I will describe a technique designed to alleviate the "in situ + exploration" problem for flow visualization. This technique relies on the Lagrangian viewpoint of flow, and has been demonstrated to be more accurate, faster, and take less storage than traditional techniques for flow visualization.

Biography: Hank Childs is an Assistant Professor in the Computer and Information Science Department at the University of Oregon, as well as a Computer Systems Engineer at Lawrence Berkeley National Laboratory. He received his Ph.D. in computer science from the University of California at Davis in 2006. Hank's research focuses on scientific visualization, high performance computing, and the intersection of the two. In July of 2012, Hank received the Department of Energy Early Career Award to research visualization with exascale computers (i.e., computers that can do 10^18 floating operations per second). Hank spent over a dozen years at Lawrence Berkeley and Lawrence Livermore National Laboratories, directing research in big data visualization. Outside of his research, Hank is best known as the architect of the VisIt project, a visualization application for very large data that is used around the world.

For more information contact the technical host Curt Canada, cvc@lanl.gov, 665-7453.

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